Lake Street Bridge (Lakeshore Drive Bridge)
(Ruddiman Creek Bridge)
Spanning Ruddiman Creek at Lakeshore Drive
Muskegon
Muskegon County
Michigan

HAER No. MI-15



PHOTOCRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERINC RECORD
MID-ATLANTIC REGION NATIONAL PARK SERVICE
DEPARIMENT OF THE INTERIOR
PHILADELPHIA, PENNSYLVANIA 19106

HISTORIC AMERICAN ENGINEERING RECORD

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Lake Street Bridge
(Lake Shore Drive Bridge)
(Ruddiman Creek Bridge)

HAER No. MI-15

Location: Lake Shore Drive over Ruddiman Creek
Muskegon, Muskegon County, Michigan

UTM: 16.557050.4785000
Quad: Lake Harbor

Date of Construction: 1891-Vehicular bridge. 1912-Repaired. 1916-Steel walkway added. 1911-Pedestrian bridge.

Designer/Builder: Designer: Riggs & Sherman
Builder: Markle Cement Company of Muskegon, Michigan

Present Use: Vehicular bridge to be demolished June 1986
Pedestrian bridge to be relocated June 1986

Significance: The Lake Street stone arch vehicular bridge in Muskegon, Michigan, is significant because it is representative of a brief period in the evolution in design of American bridges. Relatively few stone bridges were constructed in the nation during the era from 1867 to 1897, and fewer still remain as examples of this type of construction. Presently, only a half dozen remain in the Lower Peninsula of Michigan. The difficulty and time involved in constructing such spans, and the cost to do so, limited the number actually built. The Lake Street Bridge is a remnant of a distinctive method of construction which flourishes only briefly and sporadically in the Great Lakes area during the last half of the nineteenth century.

The concrete pedestrian bridge serves a utilitarian purpose providing a safe means for pedestrians to cross Ruddiman Creek. It also provides an undisturbed place from which to view the above stone arch bridge at close range, as well as the scenic views of Ruddiman Creek and Muskegon Lake.

Project Information: This documentation was undertaken in November 1985 in accordance with the Memorandum of Agreement between the Federal Highway Administration, city of Muskegon, the Advisory Council on Historic Preservation and the Michigan State History Division as a mitigative

measure prior to the demolition and removal of the bridge structures.

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City of Muskegon, Michigan

Transmitted by: Jean P. Yearby, HAER, 1987

PART I. HISTORICAL CONTEXT

A. Stone Arch Bridge

From an economic standpoint, Americans have not pursued the development of stone bridges, and stone masonry has been least important in the evolution of American bridge design. The concept of time-consuming, costly construction of stone masonry did not fit in with the young nation's image of pioneers on the move. Americans' penchant for accomplishing tasks quickly, coupled with the difficulty and high cost of construction, have limited their presence.

Due to the advent of the trolley car in the late 1880s and early 1890s, cities expanded and it became imperative to have better roads and bridges. Muskegon sought a way to solve an increasing traffic problem on Lake Street (renamed Lake Shore Drive in March of 1921). From the city's earliest days, a bridge had existed over Ruddiman Creek, connecting Muskegon with satellite communities of Lakeside, Pluffton, Port Sherman and access to Lake Michigan.

Maps dating from 1864 indicate the existence of a bridge over Ruddiman Creek, and earliest newspaper accounts and city records trace the importance of the Lake Street traffic artery throughout Muskegon's development. Earlier spans over the creek were of wooden construction and served to carry wagons, carriages, foot traffic and, later, horse-drawn street cars. In 1875, the Chronicle noted that Lakeside Township posted signs at each end of the bridge, requiring horses to be walked over in order to avoid a five dollar fine.

A wooden bridge crossing the creek was constructed in 1875; however, by 1890 it was no longer adequate to handle the increasing volume of street railway and team traffic. The westside village of Lakeside had been annexed to the city of Muskegon in 1889 and it soon became apparent that a stronger, more durable bridge was needed. The Muskegon architectural firm of Johnston and Johnston was hired to execute plans and specifications for a new bridge (Photos No. MI-15-19 through MI-15-27 were taken from two separate sets of plans that show detailed design variations; however, it is uncertain as to whether either one of these are authentic construction documents).

The Muskegon Board of Public Works was assigned the tasks of determining the best type of bridge and preparing a recommendation to be brought before the City Council. The first bids were received in February 1891; however, they were sent to the Council without recommendation. This resulted in the formation of a special committee and readvertising for

bids. Continued disagreement between the Board of Public Works and the City Council resulted in further delay. In the interim, an attempt was made to abolish the Board of Public Works and oust its members. This attempt failed and, on May 11, 1891 after further deliberation, the City Engineer recommended that Alexander Matheson of Grand Rapids be awarded a contract in the amount of $11,405.50 to construct a stone arch bridge.

According to the Grand Rapids Press, Alexander Matheson was a leading businessman dealing primarily in marble and granite monuments. He had learned the art of stonecutting in Woodstock, Ontario.

Delays in construction progress ensued and more disagreements arose, centering primarily around the inertia of the contractor and his crew. In September 1891, the Muskegon Chronicle headlined the bridge as "The City's White Elephant" because of the controversy and delays preventing its completion. Due to the myriad of setbacks, the opening of the bridge was almost an anticlimax. A brief comment in the local paper on November 19, 1891, read: "A few minutes after twelve o'clock today, the Street Railway began running its cars over the new bridge at Ruddiman Creek."

Nearly a century later, the Lake Street Bridge stands as a symbol of the perservering Muskegon people who strove to unite two segments of the community into one and who were already seeking new avenues of expansion and redevelopment even as the great lumbering era of the city was declining. The bridge remains a primary east-west connector linking the downtown and central business district of the city to the west end, including the Lakeside business district, Lakeside and Bluffton neighborhoods, industrial facilities and access to both Muskegon Lake and Lake Michigan.

The Lake Street Bridge is also valued for its scenic setting. Its beauty is enhanced by its proximity to McGraft Park which borders Ruddiman Creek and Ruddiman Lagoon, southeast of Lake Shore Drive.

Reinforced Concrete Pedestrian Bridge

Early in the twentieth century, development in the Lakeside area brought an increased volume of traffic over the Lake Street Bridge, and it became increasingly evident that street cars, teams of horses, automobiles and pedestrians could not continue to utilize the same thoroughfare safely. Several pedestrians had been injured and the city decided a separate pedestrian bridge was necessary.

The pedestrian bridge was designed by Riggs & Sherman and built by Markle Cement Company of Muskegon, at a cost of $2,755. It has the added purpose of supporting underneath, a 24-inch water main.

PART II. ARCHITECTURAL DESCRIPTION

A. Stone Arch Bridge

The Lake Street Bridge in Muskegon, Michigan, opened to road traffic in mid-November 1891, after a five-month construction period. It is a stone arch bridge, 50 feet long, 45 feet wide, and 25 feet wide with four wing walls. The single keystone arch through which Ruddiman Creek flows is 20 feet long, three feet thick and ranging from 25 feet high, where they abut up against the arch wall to 18 feet high at the ends. The masonry making up the arch is cut, coursed ashlar, while the wing walls are constructed of rough uncoursed stones. Although the structure is in need of repair due to spalling, the stone elements remain intact and full maintain the architectural and structural integrity of the bridge.

The enduring nature of this type of bridge has been accomplished because the bridge's pier foundation consists of stone blocks anchored to sunken wooden caissons. Smooth cut ashlar blocks form the abutments and wing walls, while truncated rock-faced limestone voussoirs form the arch which gives the bridge its strength as the weight is thrust laterally against the abutments. One capstone remains intact on the north arch wall.

According to the Muskegon Chronicle, August 1912, several repairs and improvements occurred to the stone arch bridge. Apparently the bridge showed signs of settling, and required additional structural reinforcement. At a cost of $2,200, the construction firm of Robert Love & Son was authorized to build a concrete retaining wall on pile foundations at the southwest side of the bridge. Additional piles were driven at the northeast side, and mention was given to the installation of large quantities of sand fill. Supplies originated from the Petoskey Stone Company.

A walkway, which was added in 1916, exists on the bridge's south side, consisting of a steel truss along the outer edge which also serves as a hand rail with fencing. The walkway surface consists of a wood plank deck. The north side of the walk is attached to the stone bridge arch wall and arch wall cap with expansion anchors and strap iron. The wall straps connect to a joint member which has stringer ties to the truss.

B. Reinforced Concrete Pedestrian Bridge

A reinforced concrete pedestrian bridge has existed since 1911, approximately 10 feet north of the stone arch bridge which carries Lake Shore Drive over Ruddiman Creek. The footbridge consists of two full depth concrete beams 53 feet long with a concrete deck eight feet wide.

It covers and supports a 24-inch water main which is supported by eight steel rods anchored to the beams at mid-depth. Wood planking attached to the bottom of the concrete beams occupies the space between the beams. Decorative elements include a series of recessed semi-circular designs on each side of the concrete beams. The bridge is in good condition except for minor spalling along the beam bottom.

PART III. SOURCES OF INFORMATION

A. Original research:

Research and documentation was prepared by Carolyn M. Mann, Historic Site Consultant for the city of Muskegon, Michigan, and completed February 15, 1983.

B. Bibliography

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